



RF IDEAS, INC. TEST REPORT

FOR THE

PCPROX CASI RUSCO, BSE-PCPRXC-USB & BSE-PCPRXC-232

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 & RSS-210

COMPLIANCE

DATE OF ISSUE: AUGUST 9, 2004

PREPARED FOR:

RF IDEas, Inc.
4238 B Arlington Heights Road #244
Arlington Heights, IL 60004

P.O. No.: R-04072201
W.O. No.: 82523

PREPARED BY:

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5473A Clouds Rest
Mariposa, CA 95338

Date of test: July 29, 2004

Report No.: FC04-060

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ADMINISTRATIVE INFORMATION

DATE OF TEST: July 29, 2004

DATE OF RECEIPT: July 29, 2004

PURPOSE OF TEST: To demonstrate the compliance of the pcProx Casi Rusco, BSE-PCPRXC-USB & BSE-PCPRXC-232 with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 & RSS-210 devices.

TEST METHOD: ANSI C63.4 (2001)

MANUFACTURER: RF IDEas, Inc.
4238 B Arlington Heights Road #244
Arlington Heights, IL 60004

REPRESENTATIVE: Rick Landuyt

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the RF IDEas, Inc. pcProx Casi Rusco, BSE-PCPRXC-USB & BSE-PCPRXC-232 was found to be fully compliant with the following standards and specifications:

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 210	5.5	47CFR	15.203	Antenna Connector Requirements
RSS 210	6.2.1	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	6.3	47CFR	15.205	Restricted Bands of Operation
RSS 210	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.5	47CFR	15.35(c)	Pulsed Operation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
IC 3082-D		784962		Site File Number

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

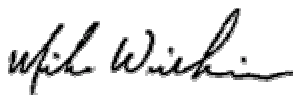


Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Randy Clark, EMC Engineer



Mike Wilkinson, Lab Manager

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit. The pcProx Casi Rusco is a device for reading proximity cards and sending data to the universal serial bus (USB port) or RS232 or Serial of a computer or equipment.

The following model has been tested by CKC Laboratories:

BSE-PCPRXC-U and BSE-PCPRXC-232

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they comply to the level of testing equivalent to the tested models.

BSE-PCPRXC-USB, BSE-PCPRXC-232, BSE-PCPRXC-232-R12, BSE-PCPRXC-TTL, BSE-PCPRXC-TTL-R12, OEM-PCPRXC-USB, OEM-PCPRXC-232, OEM-PCPRXC-232-R12, OEM-PCPRXC-TTL, OEM-PCPRXC-TTL-R12

EQUIPMENT UNDER TEST

PCPROX CASI RUSCO

Manuf: RF IDEas
Model: BSE-PCPRXC-USB
Serial: CR7000321
FCC ID: Pending

PCPROX CASI RUSCO

Manuf: RF IDEas
Model: BSE-PCPRXC-232
Serial: CR7000322
FCC ID: Pending

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Host Computer (2)

Manuf: Toshiba
Model: 2595CDS
Serial: B997681A
FCC ID: DoC

Printer

Manuf: HP
Model: DeskJet 895Cxi
Serial: MY9291B24N
FCC ID: DoC

Host Computer Power Supply

Manuf: Toshiba
Model: PA3083A-1ACN
Serial: 0201-A-06371300G
FCC ID: NA

Mouse

Manuf: Microsoft
Model: Mouse Port Compatible Mouse
2.1A
Serial: 00653718
FCC ID: C3KKMP1

FCC 15.31(e) Voltage Variations

Table 1: 15.31(e) Voltage Variation on Peak Power - USB				
FREQUENCY MHz	CORRECTED READING dB μ V/m 85%	CORRECTED READING dB μ V/m 100%	CORRECTED READING dB μ V/m 115%	SPEC LIMIT dB μ V/m
125	4.1	4.3	4.2	25.6

Test Method: ANSI C63.4 (2001)
 Spec Limit: FCC Part 15 Subpart C Section 15.209
 Test Distance: 3 meters

Table 2: 15.31(e) Voltage Variation on Peak Power - 232				
FREQUENCY MHz	CORRECTED READING dB μ V/m 85%	CORRECTED READING dB μ V/m 100%	CORRECTED READING dB μ V/m 115%	SPEC LIMIT dB μ V/m
125	4.2	4.3	4.2	25.6

Test Method: ANSI C63.4 (2001)
 Spec Limit: FCC Part 15 Subpart C Section 15.209
 Test Distance: 3 meters

FCC 15.31(m) Number Of Channels

This device operates on a single channel.

FCC 15.33(a) Frequency Ranges Tested

15.207 Conducted: 150 kHz – 30 MHz

15.209 Radiated: 9 kHz – 1000 MHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

FCC 15.203 Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

FCC 15.215 Additional Provisions to the General Radiated Emission Limitations

The fundamental frequency was kept within the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. Refer to Appendix B for the test equipment used and Appendix C for the occupied bandwidth plot(s).

Mode Of Operation

The EUT was configured by the manufacturer to operate in a continuous transmit mode for testing purposes.

EUT Operating Frequency

The EUT was operating at 125 kHz.

Temperature And Humidity During Testing

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

Emissions Designator

The emissions designator is NON1K00.

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 3: FCC 15.207 - Six Highest Conducted Emission Levels									
FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV	SPEC LIMIT dBμV	MARGIN dB	NOTES
		Lisn dB	HPF dB	Cable dB					
0.156545	49.8	0.4	2.1	0.1		52.4	55.6	-3.2	B-1
0.160181	50.6	0.3	1.8	0.1		52.8	55.5	-2.7	W-1
0.160181	50.4	0.3	1.8	0.1		52.6	55.5	-2.9	W-2
0.213266	49.4	0.4	0.1	0.1		50.0	53.1	-3.1	B-2
0.213994	49.9	0.3	0.1	0.1		50.4	53.0	-2.6	W-2
0.215448	49.9	0.4	0.1	0.1		50.5	53.0	-2.5	B-1

Test Method: ANSI C63.4 (2001)
Spec Limit : FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead
W = White Lead
1 = USB
2 = 232

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Wordl window displayed on the host computer, plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150 kHz – 30 MHz. Temperature: 23°C, Relative Humidity: 30%.

Configuration 1 = The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB.

Configuration 2 = The EUT is DC powered by the host computer via the EUT's PS2 port, EUT data is sent via RS232.

Table 4: FCC 15.209 - Highest Radiated Emission Levels: 9kHz - 30MHz

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	15.31 dB				
0.628	30.4	9.6		0.2	-40.0	0.2	31.6	-31.4	H
0.628	27.4	9.6		0.2	-40.0	-2.8	31.6	-34.4	V
0.879	24.5	9.7		0.2	-40.0	-5.6	28.7	-34.3	H
1.130	35.3	9.8		0.2	-40.0	5.3	26.5	-21.2	V
1.130	29.0	9.8		0.2	-40.0	-1.0	26.5	-27.5	H
20.020	25.4	7.2		0.9	-40.0	-6.5	29.5	-36.0	V

Test Method:
Spec Limit :
Test Distance:

ANSI C63.4 (2001)
FCC Part 15 Subpart C Section 15.209
3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 9 kHz to 30 MHz. Temperature: 23°C Relative Humidity: 30%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit. No EUT emissions detected within 20dB of the limit.

Table 5: FCC 15.209 - Six Highest Radiated Emission Levels: 30-1000MHz

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
215.215	39.5	9.5	-26.6	3.4	10.0	35.8	43.5	-7.7	H
230.565	41.9	10.7	-26.5	3.4	10.0	39.5	46.0	-6.5	V
234.325	40.8	10.9	-26.5	3.5	10.0	38.7	46.0	-7.3	V
240.113	40.1	11.3	-26.5	3.5	10.0	38.4	46.0	-7.6	H
365.030	38.8	14.6	-26.9	4.7	10.0	41.2	46.0	-4.8	H
367.470	36.0	14.6	-26.9	4.7	10.0	38.4	46.0	-7.6	V

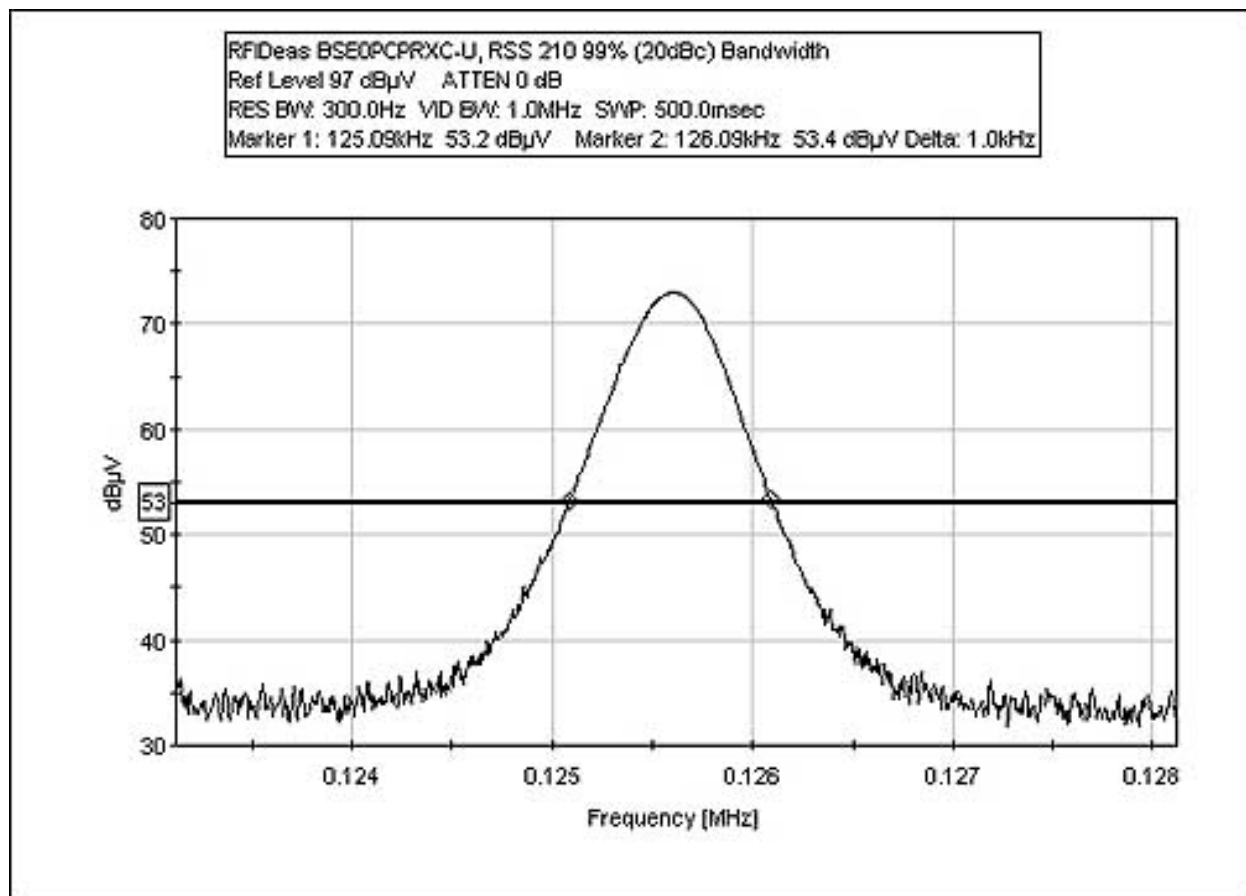
Test Method:
Spec Limit :
Test Distance:

ANSI C63.4 (2001)
FCC Part 15 Subpart C Section 15.209
10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 30 MHz to 1000 MHz Temperature: 23°C, Relative Humidity: 30%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit.

RSS 210 Bandwidth



EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Appendix B were used to collect both the radiated and conducted emissions data. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB μ V, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

The LISNs used were 50 μ H/+50 ohms. Above 150 kHz, a 0.15 μ F series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

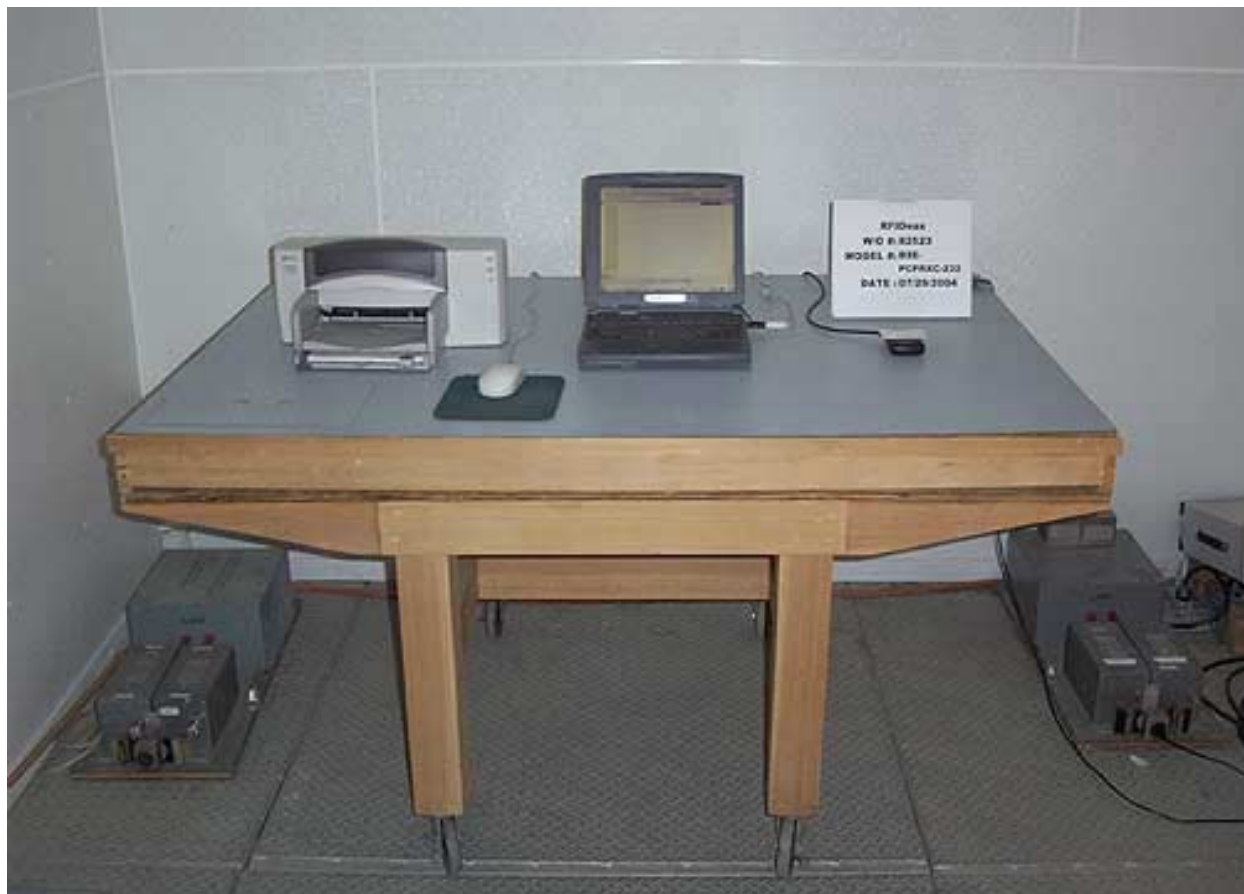
During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

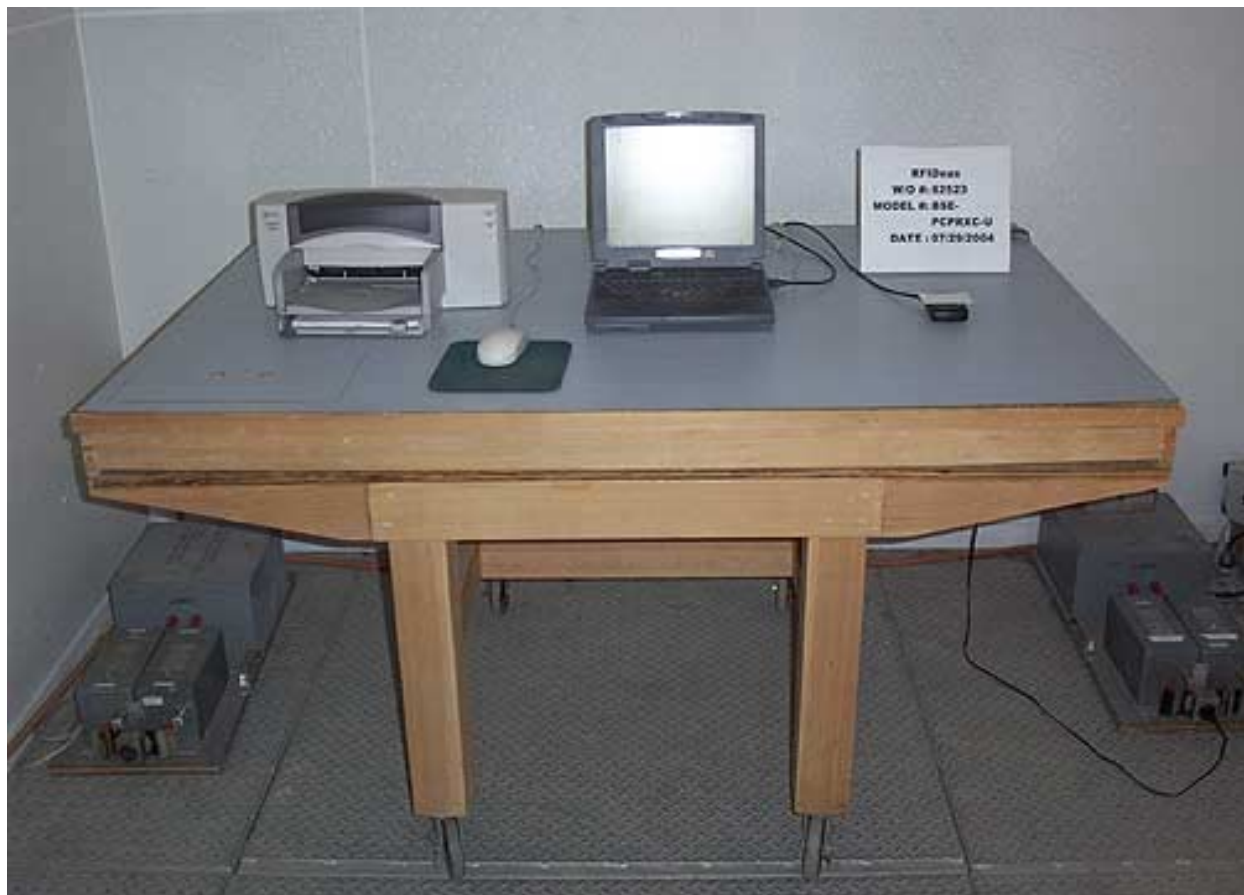
APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING CONDUCTED MAINS EMISSIONS

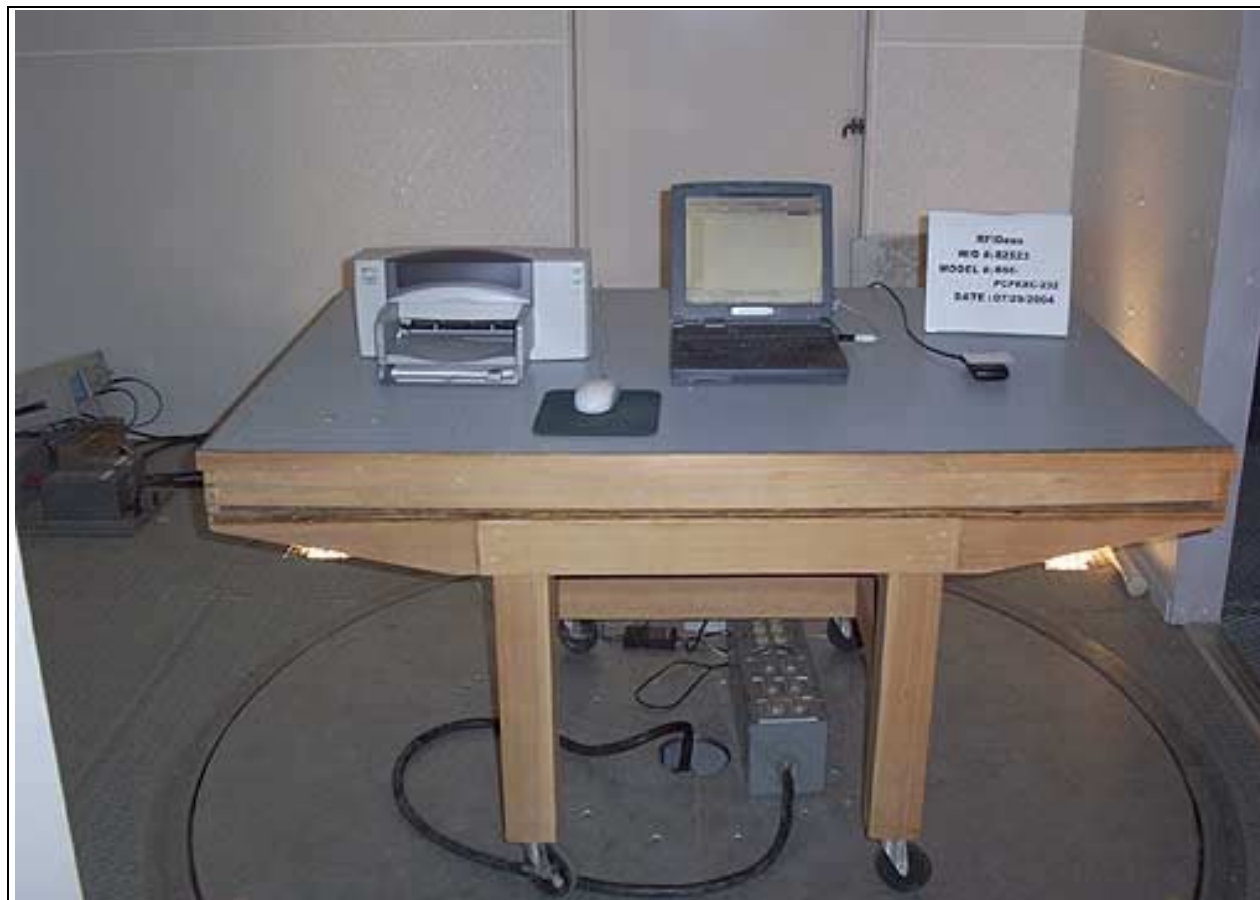


Conducted Emissions - Front View - 232



Conducted Emissions - Front View - USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - 232

PHOTOGRAPH SHOWING RADIATED EMISSIONS



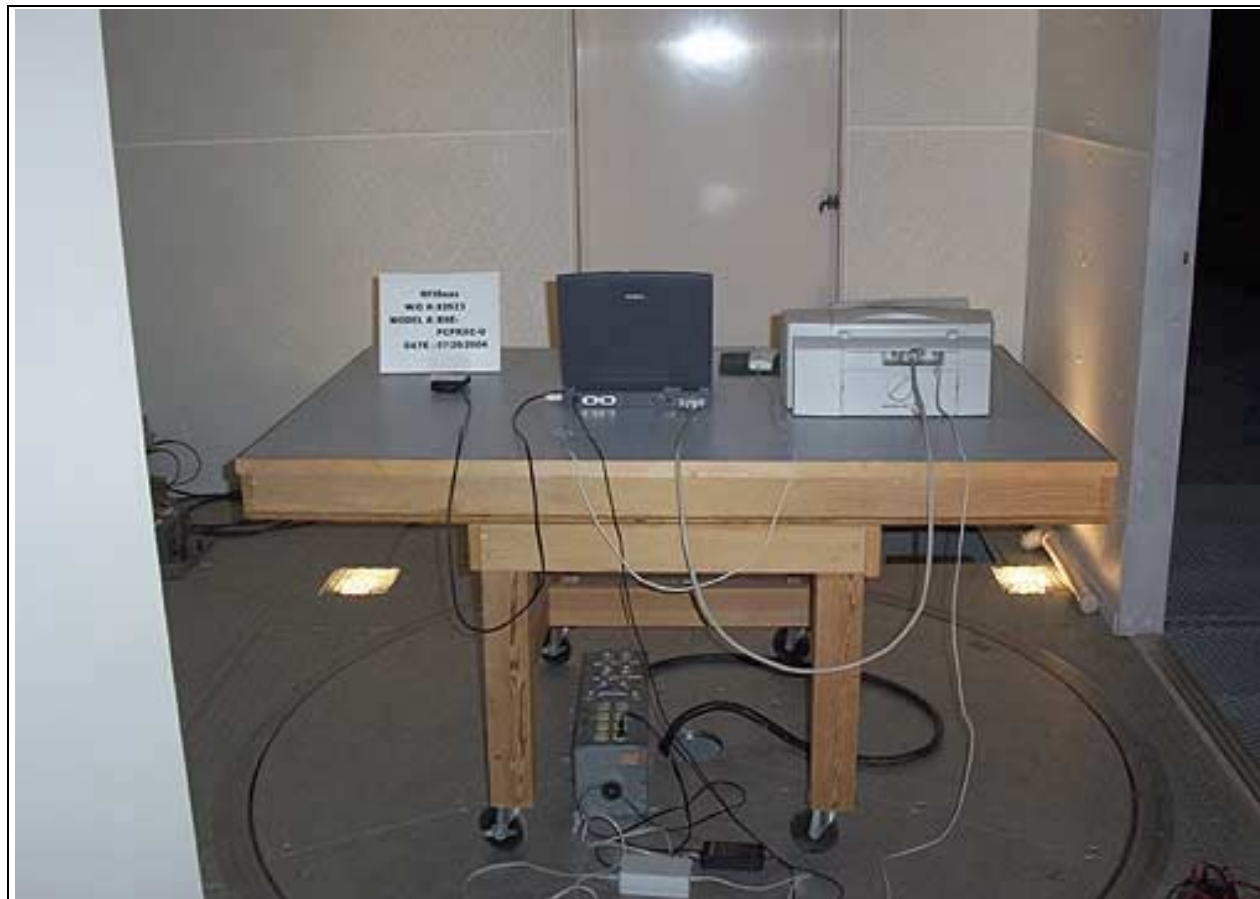
Radiated Emissions - Back View - 232

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View - USB

APPENDIX B

TEST EQUIPMENT LIST

Conducted Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
150kHz HP Filter	G7753	04/20/2004	04/20/2006	02609
TTE				
LISN, 8028-50-TS-24-BNC	8379276, 280	06/05/2003	06/05/2005	1248 & 1249

9kHz – 30 MHz Radiated Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
EMCO Loop Antenna	1074	05/21/2003	05/21/2005	00226

30 – 1000 MHz Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2005	00099
Chase CBL6111C	2456	12/13/2002	12/13/2004	01991
Bilog				

APPENDIX C:

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **RF IDEas**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82523**
 Test Type: **Conducted Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas**
 Model: **BSE-PCPRXC-U**
 S/N: **CR7000321**

Date: 7/30/04
 Time: 3:43:12 PM
 Sequence#: 19
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
125 kHz Proximity Card Reader*	RF IDEas	BSE-PCPRXC-U	CR7000321

Support Devices:

Function	Manufacturer	Model #	S/N
Host Computer	Toshiba	2595CDS	B997681A
Mouse	Microsoft	Mouse port compatible mouse 2.1A	00653718
Host Computer	Toshiba	2595CDS	B997681A
Host Computer Power Supply	Toshiba	PA3083A-1ACN	0201-A-06371300G

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Wordl window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

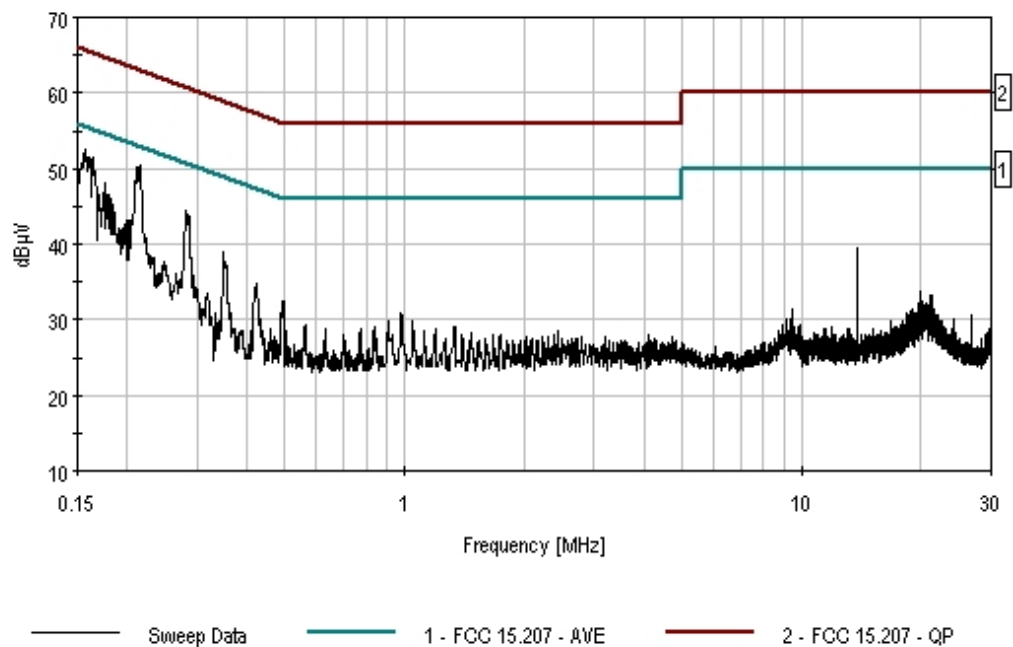
Transducer Legend:

T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n276
T3=HP Filter AN02608	

Measurement Data:		Reading listed by margin.					Test Lead: Black				
#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	215.448k	49.9	+0.1	+0.4	+0.1		+0.0	50.5	53.0	-2.5	Black
2	156.545k	49.8	+0.1	+0.4	+2.1		+0.0	52.4	55.6	-3.2	Black
3	163.817k	49.7	+0.1	+0.4	+1.4		+0.0	51.6	55.3	-3.7	Black
4	150.000k	47.1	+0.1	+0.4	+2.7		+0.0	50.3	56.0	-5.7	Black
5	282.350k	43.9	+0.1	+0.3	+0.2		+0.0	44.5	50.7	-6.2	Black
6	176.179k	47.2	+0.1	+0.4	+0.5		+0.0	48.2	54.7	-6.5	Black
7	350.707k	38.4	+0.1	+0.4	+0.1		+0.0	39.0	48.9	-9.9	Black

8	200.177k	42.7	+0.1	+0.4	+0.0	+0.0	43.2	53.6	-10.4	Black
9	13.823M	38.5	+0.4	+0.5	+0.1	+0.0	39.5	50.0	-10.5	Black
10	424.154k	34.0	+0.1	+0.4	+0.2	+0.0	34.7	47.4	-12.7	Black
11	493.238k	31.8	+0.1	+0.3	+0.2	+0.0	32.4	46.1	-13.7	Black
12	247.445k	37.0	+0.1	+0.3	+0.3	+0.0	37.7	51.8	-14.1	Black
13	979.072k	30.1	+0.2	+0.3	+0.2	+0.0	30.8	46.0	-15.2	Black
14	1.047M	29.2	+0.2	+0.3	+0.2	+0.0	29.9	46.0	-16.1	Black
15	906.771k	29.1	+0.2	+0.3	+0.2	+0.0	29.8	46.0	-16.2	Black
16	19.985M	32.6	+0.5	+0.4	+0.2	+0.0	33.7	50.0	-16.3	Black
17	21.174M	32.2	+0.5	+0.4	+0.2	+0.0	33.3	50.0	-16.7	Black
18	563.050k	28.6	+0.1	+0.3	+0.2	+0.0	29.2	46.0	-16.8	Black
19	838.658k	28.5	+0.1	+0.2	+0.3	+0.0	29.1	46.0	-16.9	Black
20	1.332M	28.4	+0.2	+0.3	+0.2	+0.0	29.1	46.0	-16.9	Black

CKC Laboratories Date: 7/30/04 Time: 3:43:12 PM RFIDEas WIO#: 82523
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 19
 RFIDEas M/N BSE-PCPRXC-U



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **RF IDEas**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82523**
 Test Type: **Conducted Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas**
 Model: **BSE-PCPRXC-U**
 S/N: **CR7000321**

Date: 7/30/04
 Time: 3:35:53 PM
 Sequence#: 18
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
125 kHz Proximity Card Reader*	RF IDEas	BSE-PCPRXC-U	CR7000321

Support Devices:

Function	Manufacturer	Model #	S/N
Host Computer	Toshiba	2595CDS	B997681A
Mouse	Microsoft	Mouse port compatible mouse 2.1A	00653718
Host Computer	Toshiba	2595CDS	B997681A
Host Computer Power Supply	Toshiba	PA3083A-1ACN	0201-A-06371300G

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Wordl window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Transducer Legend:

T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n280
T3=HP Filter AN02608	

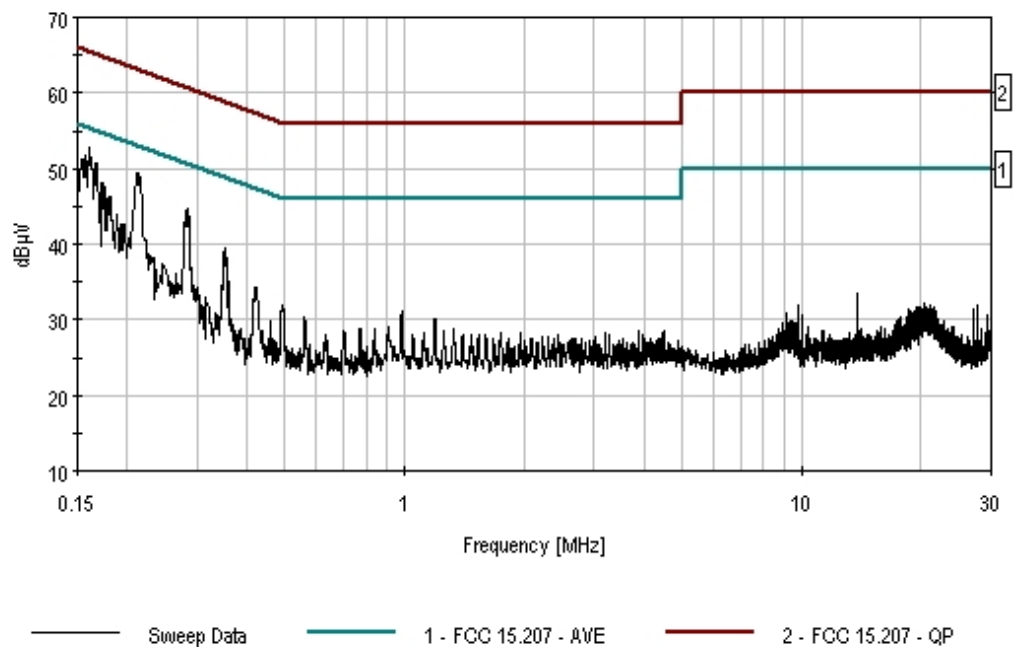
Measurement Data: Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	160.181k	50.6	+0.1	+0.3	+1.8		+0.0	52.8	55.5	-2.7	White
2	211.812k	49.0	+0.1	+0.3	+0.1		+0.0	49.5	53.1	-3.6	White
3	157.272k	49.4	+0.1	+0.3	+2.0		+0.0	51.8	55.6	-3.8	White
4	166.726k	49.2	+0.1	+0.3	+1.2		+0.0	50.8	55.1	-4.3	White
5	284.532k	44.1	+0.1	+0.2	+0.2		+0.0	44.6	50.7	-6.1	White
6	172.543k	47.0	+0.1	+0.3	+0.7		+0.0	48.1	54.8	-6.7	White
7	353.616k	38.9	+0.1	+0.3	+0.1		+0.0	39.4	48.9	-9.5	White

8	188.542k	43.3	+0.1	+0.3	+0.2	+0.0	43.9	54.1	-10.2	White
9	192.905k	42.2	+0.1	+0.3	+0.1	+0.0	42.7	53.9	-11.2	White
10	195.814k	42.1	+0.1	+0.3	+0.1	+0.0	42.6	53.8	-11.2	White
11	423.427k	33.7	+0.1	+0.3	+0.2	+0.0	34.3	47.4	-13.1	White
12	359.434k	34.6	+0.1	+0.3	+0.1	+0.0	35.1	48.7	-13.6	White
13	491.057k	31.2	+0.1	+0.3	+0.2	+0.0	31.8	46.1	-14.3	White
14	245.990k	36.7	+0.1	+0.2	+0.3	+0.0	37.3	51.9	-14.6	White
15	983.325k	30.4	+0.2	+0.3	+0.2	+0.0	31.1	46.0	-14.9	White
16	558.686k	29.8	+0.1	+0.2	+0.3	+0.0	30.4	46.0	-15.6	White
17	1.187M	29.5	+0.2	+0.3	+0.2	+0.0	30.2	46.0	-15.8	White
18	360.888k	31.9	+0.1	+0.3	+0.1	+0.0	32.4	48.7	-16.3	White
19	13.814M	32.5	+0.4	+0.4	+0.1	+0.0	33.4	50.0	-16.6	White
20	906.771k	28.5	+0.2	+0.2	+0.2	+0.0	29.1	46.0	-16.9	White

CKC Laboratories Date: 7/30/04 Time: 3:35:53 PM RFIDEas WIO#: 82523
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 18
 RFIDEas M/N BSE-PCPRXC-U



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **RF IDEas**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82523**
 Test Type: **Conducted Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas**
 Model: **BSE-PCPRXC-232**
 S/N: **CR7000322**

Date: 7/30/04
 Time: 1:40:20 PM
 Sequence#: 12
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
125 kHz Proximity Card Reader*	RF IDEas	BSE-PCPRXC-232	CR7000322

Support Devices:

Function	Manufacturer	Model #	S/N
Host Computer	Toshiba	2595CDS	B997681A
Mouse	Microsoft	Mouse port compatible mouse 2.1A	00653718
Host Computer	Toshiba	2595CDS	B997681A
Host Computer Power Supply	Toshiba	PA3083A-1ACN	0201-A-06371300G

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's PS2 port, EUT data is sent via RS232. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a hyperterminal window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

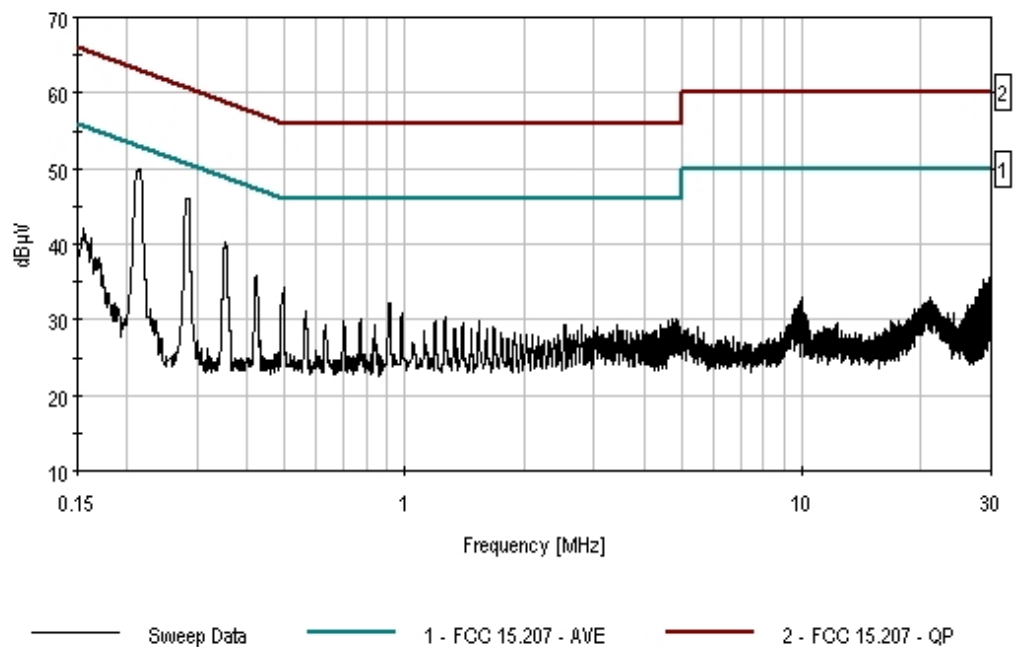
Transducer Legend:

T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n276
T3=HP Filter AN02608	

Measurement Data:		Reading listed by margin.					Test Lead: Black				
#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	213.266k	49.4	+0.1	+0.4	+0.1		+0.0	50.0	53.1	-3.1	Black
2	285.259k	45.5	+0.1	+0.3	+0.2		+0.0	46.1	50.7	-4.6	Black
3	354.343k	39.6	+0.1	+0.4	+0.1		+0.0	40.2	48.9	-8.7	Black
4	424.882k	35.1	+0.1	+0.4	+0.2		+0.0	35.8	47.4	-11.6	Black
5	495.420k	33.6	+0.1	+0.3	+0.2		+0.0	34.2	46.1	-11.9	Black
6	154.363k	39.2	+0.1	+0.4	+2.3		+0.0	42.0	55.8	-13.8	Black
7	915.277k	31.4	+0.2	+0.3	+0.2		+0.0	32.1	46.0	-13.9	Black

8	29.527M	34.4	+0.6	+0.4	+0.2	+0.0	35.6	50.0	-14.4	Black
9	29.774M	34.4	+0.6	+0.4	+0.2	+0.0	35.6	50.0	-14.4	Black
10	161.635k	38.7	+0.1	+0.4	+1.6	+0.0	40.8	55.4	-14.6	Black
11	28.773M	34.1	+0.6	+0.4	+0.2	+0.0	35.3	50.0	-14.7	Black
12	562.322k	30.4	+0.1	+0.3	+0.3	+0.0	31.1	46.0	-14.9	Black
13	983.325k	30.3	+0.2	+0.3	+0.2	+0.0	31.0	46.0	-15.0	Black
14	29.034M	33.7	+0.6	+0.4	+0.2	+0.0	34.9	50.0	-15.1	Black
15	29.274M	33.7	+0.6	+0.4	+0.2	+0.0	34.9	50.0	-15.1	Black
16	28.527M	33.2	+0.6	+0.4	+0.2	+0.0	34.4	50.0	-15.6	Black
17	1.264M	29.6	+0.2	+0.3	+0.2	+0.0	30.3	46.0	-15.7	Black
18	772.483k	29.6	+0.1	+0.2	+0.3	+0.0	30.2	46.0	-15.8	Black
19	28.019M	32.7	+0.6	+0.4	+0.2	+0.0	33.9	50.0	-16.1	Black
20	28.273M	32.7	+0.6	+0.4	+0.2	+0.0	33.9	50.0	-16.1	Black

CKC Laboratories Date: 7/30/04 Time: 1:40:20 PM RFIDEas WIO#: 82523
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 12
 RFIDEas M/N BSE-PCPRXC-232



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **RF IDEas**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82523**
 Test Type: **Conducted Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas**
 Model: **BSE-PCPRXC-232**
 S/N: **CR7000322**

Date: 7/30/04
 Time: 2:07:10 PM
 Sequence#: 13
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
125 kHz Proximity Card Reader*	RF IDEas	BSE-PCPRXC-232	CR7000322

Support Devices:

Function	Manufacturer	Model #	S/N
Host Computer	Toshiba	2595CDS	B997681A
Mouse	Microsoft	Mouse port compatible mouse 2.1A	00653718
Host Computer	Toshiba	2595CDS	B997681A
Host Computer Power Supply	Toshiba	PA3083A-1ACN	0201-A-06371300G

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's PS2 port, EUT data is sent via RS232. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a hyperterminal window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Transducer Legend:

T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n280
T3=HP Filter AN02608	

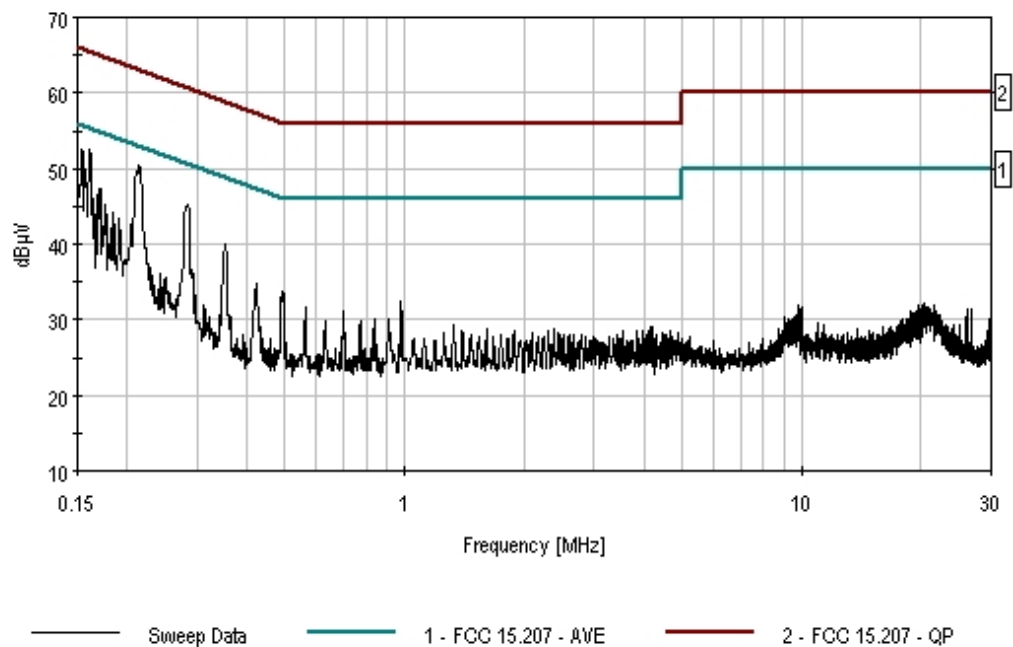
Measurement Data: Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	213.994k	49.9	+0.1	+0.3	+0.1		+0.0	50.4	53.0	-2.6	White
2	160.181k	50.4	+0.1	+0.3	+1.8		+0.0	52.6	55.5	-2.9	White
3	153.636k	49.6	+0.1	+0.3	+2.4		+0.0	52.4	55.8	-3.4	White
4	155.818k	48.6	+0.1	+0.3	+2.2		+0.0	51.2	55.7	-4.5	White
5	284.532k	44.7	+0.1	+0.2	+0.2		+0.0	45.2	50.7	-5.5	White
6	170.362k	46.1	+0.1	+0.3	+0.9		+0.0	47.4	54.9	-7.5	White
7	167.453k	45.1	+0.1	+0.3	+1.1		+0.0	46.6	55.1	-8.5	White

8	168.907k	45.1	+0.1	+0.3	+1.0	+0.0	46.5	55.0	-8.5	White
9	353.616k	39.4	+0.1	+0.3	+0.1	+0.0	39.9	48.9	-9.0	White
10	164.544k	44.3	+0.1	+0.3	+1.4	+0.0	46.1	55.2	-9.1	White
11	175.452k	44.3	+0.1	+0.3	+0.5	+0.0	45.2	54.7	-9.5	White
12	183.451k	43.6	+0.1	+0.3	+0.3	+0.0	44.3	54.3	-10.0	White
13	190.723k	42.7	+0.1	+0.3	+0.2	+0.0	43.3	54.0	-10.7	White
14	185.633k	42.0	+0.1	+0.3	+0.3	+0.0	42.7	54.2	-11.5	White
15	492.511k	33.1	+0.1	+0.3	+0.2	+0.0	33.7	46.1	-12.4	White
16	424.882k	34.3	+0.1	+0.3	+0.2	+0.0	34.9	47.4	-12.5	White
17	979.072k	31.8	+0.2	+0.3	+0.2	+0.0	32.5	46.0	-13.5	White
18	562.322k	31.1	+0.1	+0.2	+0.3	+0.0	31.7	46.0	-14.3	White
19	697.582k	30.5	+0.1	+0.2	+0.3	+0.0	31.1	46.0	-14.9	White
20	242.354k	35.5	+0.1	+0.3	+0.3	+0.0	36.2	52.0	-15.8	White

CKC Laboratories Date: 7/30/04 Time: 2:07:10 PM RFIDEas WIO#: 82523
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 13
 RFIDEas M/N BSE-PCPRXC-232



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **RF IDEas**
 Specification: **FCC 15.209**
 Work Order #: **82523**
 Test Type: **Maximized Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas**
 Model: **BSE-PCPRXC-xxx**
 S/N:

Date: 7/29/04
 Time: 22:29:53
 Sequence#: 2
 Tested By: Mike Wilkinson

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
125 kHz Proximity Card Reader	RF IDEas	BSE-PCPRXC-232	CR7000322
125 kHz Proximity Card Reader	RF IDEas	BSE-PCPRXC-U	CR7000321

Support Devices:

Function	Manufacturer	Model #	S/N
Host Computer	Toshiba	2595CDS	B997681A
Printer	HP	DeskJet 895Cxi	MY9291B24N
Mouse	Microsoft	Mouse port compatible mouse 2.1A	00653718

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 9 kHz to 30 MHz. Temperature: 23°C, Relative Humidity: 30%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit. No EUT emissions detected within 20dB of the limit.

Transducer Legend:

T1=Mag Loop - Site B - AN 00226 - 9kHz-30M	T2=Cable - 3 Meter
T3=15.31 3m 40dB/Dec Correction	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist dB	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	125.949k	75.3	+9.6	+0.1	-80.0	+0.0 1	5.0	25.6 Fundamental	-20.6	Vert 100
2	1.130M	35.3	+9.8	+0.2	-40.0	+0.0 124	5.3	26.5	-21.2	Vert 100
3	125.585k	74.2	+9.6	+0.1	-80.0	+0.0 173	3.9	25.6 Fundamental	-21.7	Horiz 100
4	1.130M	29.0	+9.8	+0.2	-40.0	+0.0 6	-1.0	26.5	-27.5	Horiz 100
5	627.930k	30.4	+9.6	+0.2	-40.0	+0.0 6	0.2	31.6	-31.4	Horiz 100

6	879.040k	24.5	+9.7	+0.2	-40.0	+0.0 6	-5.6	28.7	-34.3	Horiz 100
7	627.945k	27.4	+9.6	+0.2	-40.0	+0.0 124	-2.8	31.6	-34.4	Vert 100
8	20.020M	25.4	+7.2	+0.9	-40.0	+0.0 363	-6.5	29.5	-36.0	Vert 100
9	1.381M	17.8	+9.7	+0.3	-40.0	+0.0 6	-12.2	24.7	-36.9	Horiz 100
10	1.884M	16.5	+9.6	+0.3	-40.0	+0.0 6	-13.6	29.5	-43.1	Horiz 100
11	2.762M	14.7	+9.5	+0.4	-40.0	+0.0 6	-15.4	29.5	-44.9	Horiz 100
12	376.800k	38.2	+9.6	+0.2	-80.0	+0.0 173	-32.0	16.1	-48.1	Horiz 100
13	376.740k	33.4	+9.6	+0.2	-80.0	+0.0 124	-36.8	16.1	-52.9	Vert 100

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **RF IDEas**
 Specification: **FCC 15.209**
 Work Order #: **82523**
 Test Type: **Maximized Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas**
 Model: **BSE-PCPRXC-xxx**
 S/N:

Date: 7/29/04
 Time: 21:35:46
 Sequence#: 5
 Tested By: Randal Clark

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
125 kHz Proximity Card Reader	RF IDEas	BSE-PCPRXC-232	CR7000322
125 kHz Proximity Card Reader	RF IDEas	BSE-PCPRXC-U	CR7000321

Support Devices:

Function	Manufacturer	Model #	S/N
Host Computer	Toshiba	2595CDS	B997681A
Printer	HP	DeskJet 895Cxi	MY9291B24N
Mouse	Microsoft	Mouse port compatible mouse 2.1A	00653718

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was - 30 MHz to 1000 MHz. Temperature: 23°C, Relative Humidity: 30%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit.

Transducer Legend:

T1=Amp - S/N 604	T2=Bilog Site B
T3=Cable - 10 Meter	

Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	365.030M	38.8	-26.9	+14.6	+4.7	+10.0	124	41.2	46.0	-4.8	Horiz 307
2	230.565M	41.9	-26.5	+10.7	+3.4	+10.0	72	39.5	46.0	-6.5	Vert 103
3	234.325M	40.8	-26.5	+10.9	+3.5	+10.0	72	38.7	46.0	-7.3	Vert 103
4	367.470M	36.0	-26.9	+14.6	+4.7	+10.0	166	38.4	46.0	-7.6	Vert 107
5	240.113M	40.1	-26.5	+11.3	+3.5	+10.0	98	38.4	46.0	-7.6	Horiz 307
6	215.215M	39.5	-26.6	+9.5	+3.4	+10.0	106	35.8	43.5	-7.7	Horiz 295

7	184.915M	40.7	-26.8	+8.2	+3.1	+10.0 276	35.2	43.5	-8.3	Horiz 295
8	167.580M QP	39.7	-26.9	+9.3	+2.9	+10.0 270	35.0	43.5	-8.5	Horiz 295
^	167.580M	41.7	-26.9	+9.3	+2.9	+10.0 270	37.0	43.5	-6.5	Horiz 295
10	155.205M	38.6	-27.0	+10.2	+2.8	+10.0 60	34.6	43.5	-8.9	Vert 103
11	156.480M	38.3	-26.9	+10.2	+2.9	+10.0 60	34.5	43.5	-9.0	Vert 103
12	173.045M QP	39.6	-26.8	+8.7	+3.0	+10.0 276	34.5	43.5	-9.0	Horiz 295
^	173.045M	43.4	-26.8	+8.7	+3.0	+10.0 276	38.3	43.5	-5.2	Horiz 295
14	196.935M	39.3	-26.7	+8.3	+3.3	+10.0 157	34.2	43.5	-9.3	Vert 103
15	239.645M	38.2	-26.5	+11.3	+3.5	+10.0 72	36.5	46.0	-9.5	Vert 103
16	306.950M	35.8	-26.5	+13.0	+4.2	+10.0 124	36.5	46.0	-9.5	Horiz 307
17	302.640M	35.8	-26.5	+12.9	+4.1	+10.0 124	36.3	46.0	-9.7	Horiz 307
18	217.960M	39.5	-26.6	+9.7	+3.4	+10.0 98	36.0	46.0	-10.0	Horiz 307
19	198.385M	38.5	-26.7	+8.3	+3.3	+10.0 157	33.4	43.5	-10.1	Vert 103
20	210.075M	37.4	-26.6	+9.1	+3.3	+10.0 106	33.2	43.5	-10.3	Horiz 295
21	214.515M QP	36.6	-26.6	+9.5	+3.4	+10.0 72	32.9	43.5	-10.6	Vert 103
^	214.515M	41.0	-26.6	+9.5	+3.4	+10.0 72	37.3	43.5	-6.2	Vert 103
23	139.345M	36.1	-27.1	+10.9	+2.7	+10.0 99	32.6	43.5	-10.9	Vert 107
24	198.405M	37.6	-26.7	+8.3	+3.3	+10.0 106	32.5	43.5	-11.0	Horiz 295
25	196.160M	37.6	-26.7	+8.3	+3.3	+10.0 106	32.5	43.5	-11.0	Horiz 295
26	311.240M	34.2	-26.6	+13.1	+4.2	+10.0 124	34.9	46.0	-11.1	Horiz 307
27	224.051M QP	37.8	-26.5	+10.2	+3.4	+10.0 98	34.9	46.0	-11.1	Horiz 307
^	224.040M	40.8	-26.5	+10.2	+3.4	+10.0 98	37.9	46.0	-8.1	Horiz 307
29	149.680M	36.1	-27.0	+10.4	+2.8	+10.0 91	32.3	43.5	-11.2	Vert 103
30	227.300M QP	37.1	-26.5	+10.3	+3.4	+10.0 77	34.3	46.0	-11.7	Vert 100
^	227.300M	41.0	-26.5	+10.4	+3.4	+10.0 77	38.3	46.0	-7.7	Vert 100
32	120.050M	35.5	-27.2	+10.9	+2.5	+10.0 364	31.7	43.5	-11.8	Horiz 307

33	222.780M	37.0	-26.5	+10.1	+3.4	+10.0	34.0	46.0	-12.0	Vert
	QP					72				103
^	222.780M	41.8	-26.5	+10.1	+3.4	+10.0	38.8	46.0	-7.2	Vert
						72				103
35	225.209M	36.7	-26.5	+10.3	+3.4	+10.0	33.9	46.0	-12.2	Horiz
	QP					98				307
^	225.300M	40.7	-26.5	+10.3	+3.4	+10.0	37.9	46.0	-8.1	Horiz
						98				307
37	221.680M	36.4	-26.5	+10.0	+3.4	+10.0	33.3	46.0	-12.7	Vert
	QP					77				100
^	221.680M	40.0	-26.5	+10.0	+3.4	+10.0	36.9	46.0	-9.1	Vert
						77				100
39	117.635M	34.8	-27.2	+10.7	+2.4	+10.0	30.7	43.5	-12.8	Horiz
						364				307
40	217.075M	36.6	-26.6	+9.7	+3.4	+10.0	33.1	46.0	-12.9	Vert
	QP					72				103
^	217.075M	40.4	-26.6	+9.6	+3.4	+10.0	36.8	46.0	-9.2	Vert
						72				103
42	137.445M	32.5	-27.1	+10.9	+2.7	+10.0	29.0	43.5	-14.5	Vert
	QP					99				107
^	137.445M	39.9	-27.1	+10.9	+2.7	+10.0	36.4	43.5	-7.1	Vert
						99				107
44	118.910M	30.7	-27.2	+10.8	+2.5	+10.0	26.8	43.5	-16.7	Horiz
						364				307